Amendments to the Specification

Page 4, please replace the paragraphs spanning page 4, line 7, through page 5, line 4, as follows:

Figure 1 shows a motor vehicle 1 having a peripheral plastic layer 2. The illustrated motor vehicle 1 is completely or partially encompassed by plastic layer 2 in the impact regions. The plastic layer 2 encompassing the motor vehicle 1 in the lower region in the application example serves as a scratch guard and, in a minor rear-end collision or in the entrance or exit of a parking space, as impact protection for preventing damage to the paint or the body. This plastic layer 2, which is the first part to be damaged in most accidents, is or contains at least one part of the accident sensor. The plastic covering 2 can be disposed around the entire vehicle 1 or only part of it. In any event, however, the plastic covering 2 serves numerous purposes.

The nature of the plastic layer 2 is such that it generates a structure-borne-sound signal during the deformation, or its radiation transparency changes, or it generates an electrical signal by means of an integrated piezo-layer. An advantage here is that plastic typically possesses far better structure-borne-sound properties than metal. Thus, the plastic protective covering 2 on the motor vehicle 1 can be used simultaneously as a deformation-measuring element that acoustically transmits a material crackling that is typical for a specific degree of deformation, or optically or electrically transmits a different signal. The deformation site can be determined based on the transit times required by the signal from the deformation site to the signal receiver. If the plastic is provided with

profiles, for example, the structure-borne-sound signal generated during the deformation is more intensive and its measurement is less ambiguous, more exact and therefore more useful.

Page 5, please replace the paragraphs spanning page 5, line 7, through page 7, line 10, as follows:

Figure 2A illustrates the principle of the measurement of the radiation or the beam path 5 in the plastic layer 2. This figure shows a radiation-transparent plastic layer 2 disposed around a motor vehicle, as described in connection with Figure 1. It is not crucial whether the entire plastic part 2 is radiation-transparent, or at least one radiation-transparent layer is disposed on or in the plastic. The structure further includes a radiation source 3 and a radiation detector 4. The radiation detector 4 measures the quantity of radiation or light that is transported from the radiation or light source via the light guide. The light guide should be shielded such that no radiation that is incident from the outside can reach the radiation detector 4. As long as the plastic part 2 is not damaged, the same quantity of light will reach the radiation detector 4.

Figure 2B shows the optical accident detection based on the change in beam path in the event that the plastic layer 2 and, particularly, the light guide are damaged. During the deformation 10 of the plastic layer 2, the beam path 5 changes, and the quantity of radiation that reaches the radiation receiver 4 is reduced. The radiation transmitted by the radiation or light source 3 takes a different path from the one shown in Figure 2A. Thus, both the distribution and the quantity of the radiation

detected by the radiation detector 4 change. During the deformation 10 of the plastic layer 2, these parameters change constantly until the deformation process has ended. The change in the quantity of radiation over time, and the change in the radiation distribution over time, allow conclusions to be reached regarding the origin of the damage to the plastic. Evaluation electronics 13 (see Fig. 3A), as disclosed in DE 37 29 019 for example, determine the severity and source of the accident and the deformation site on the motor vehicle.

Figure 3A shows the acoustical sound measurement on the plastic layer. A microphone 6, particularly a structure-borne-sound sensor, a directional microphone or another acoustical receiver, is disposed in the motor vehicle. The receiver is oriented toward the plastic layer 2. The sensitivity of the acoustical receiver lies in the range of the frequency spectrum of the structure-borne sound, particularly the material crackling of the plastic layer 2. The acoustical receiver 6 detects the acoustical signals generated through the deformation of the plastic layer 2. One or more receivers can be used for this purpose. The receivers can project in different spatial directions for using the transit time to determine the exact accident site. The signal is then conducted further via evaluation electronics 13. DE 37 29 019 describes an example of this type of electronics.

Figure 3B shows the acoustical accident detection through the measurement of the structure-borne sound, particularly the material crackling. Structure-borne sound is generated during the deformation 10 of the plastic layer 2. This initiates a material crackling 7 in the ultrasonic range, which can be measured in the frequency range of 60 Hz to 100 Hz. A microphone 6 detects the

intensity, phase position, damping and transit time in the material crackling specific for this plastic layer 2. Evaluation electronics disclosed in DE 37 29 019, for example, can use this data to determine the severity and origin of the accident, and the deformation site on the motor vehicle.

Figure 4A shows the plastic layer 2 coated with a piezofilm 8. In this embodiment, a piezofilm 8 is applied to the plastic layer 2 or integrated with the plastic layer 2. The piezofilm 8 generates an electrical or optical signal under pressure or the effect of a mechanical force. Further included in this arrangement is a receiver for detecting the electrical or optical signal. This receiver is not shown in the figure because it is disposed directly on the plastic layer in an optical detection arrangement, as shown in Figure 2A, or, in an electrical detection arrangement, at an arbitrary location that is electrically connected to the piezofilm.

Page 7, please replace the paragraphs spanning page 7, lines 17-21, as follows:

Figure 5 shows different profiles 9. These profiles can be worked into the plastic layer and/or the light guide for generating a better structure-borne-sound signal. If the piezofilm is applied to the plastic layer provided with profiles, more voltage signals or discharge flashes are generated due to mechanical stresses than in an application to a smooth base structure.